

Appl. No. 10/629232
Amtd Dated Sep. 28 , 2005
Reply to Office Action June 28, 2005

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (currently amended): A heat sink assembly comprising:
a printed circuit board having an electronic package mounted thereon;
a retention module surrounding the electronic package, the retention module being integrally formed and defining two positioning holes at symmetrically opposite sides of a center thereof, the retention module defining an opening in a middle thereof;

two pins positioned in the positioning holes and welded to the printed circuit board;

a heat sink having a base received in the opening of the retention module;
and

a clip cooperating with the retention module to press the heat sink against the electronic package.

Claim 2 (original): The heat sink assembly of claim 1, wherein the printed circuit board defines a pair of locating holes corresponding to the positioning holes of the retention module, and the pins are welded into the locating holes.

Claim 3 (original): The heat sink assembly of claim 2, wherein each of the pins sequentially comprises a blocking portion, a connection portion and a welding portion, each of said portions sequentially having successively reduced

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diameters, the blocking portions abut against the retention module, the connecting portions are lodged in the positioning holes and the welding portions are welded into the locating holes of the printed circuit board.

Claim 4 (original): The heat sink assembly of claim 1, wherein the clip comprises a pressing portion for pressing the heat sink against the electronic package, and a pair of the clamping portions engaging with the retention module.

Claim 5 (original): The heat sink assembly of claim 4, wherein a plurality of standoffs extends from the retention module for isolating the retention module from the printed circuit board.

Claim 6 (original): The heat sink assembly of claim 5, wherein the clip is made of plastic, the clamping portions extend from respective opposite sides of the pressing portion toward the printed circuit board, and the clamping portions form distal hooks engagingly clasping the retention module.

Claim 7 (original): The heat sink assembly of claim 4, wherein a pair of catches is integrally formed outwardly from the retention module at diagonally opposite corners thereof respectively, the catches engaging with the clamping portions of the clip.

Claim 8 (withdrawn)

Claim 9 (original): The heat sink assembly of claim 4, wherein a pair of

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symmetrical catches is integrally formed outwardly from opposite sides of the retention module, the catches engaging with the clamping portions of the clip.

Claim 10 (original): The heat sink assembly of claim 9, wherein the clamping portions of the clip comprise a leg depending from side of the pressing portion and an operating portion engaged with an opposite side of the pressing portion respectively, the leg and the operating portion each define a slot therein, and the slots engagingly receive the catches of the retention module.

Claim 11 (original): The heat sink assembly of claim 1, wherein the retention module is substantially rectangular, and the two positioning holes are defined in diagonally opposite corners of the retention module.

Claim 12 (currently amended): An electronic device comprising:
a printed circuit board having an electronic package mounted thereon;
a retention module surrounding the electronic package, the retention module being integrally formed, two pins extending from the retention module to the printed circuit board and being welded to the printed circuit board, the retention module defining an opening in a middle thereof;
a heat sink having a base received in the opening of the retention module;
and
a clip cooperating with the retention module to press the heat sink against the electronic package.

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Claim 13 (original): The heat sink assembly of claim 12, wherein the pins are disposed at symmetrically opposite sides of a center of the retention module.

Claim 14 (original): The heat sink assembly of claim 12, wherein the pins are integrally formed from or welded to a portion of the retention module facing the printed circuit board.

Claim 15 (original): The heat sink assembly of claim 12, wherein a pair of positioning holes is defined in the retention module, first ends of the pins are welded or interferentially received in the positioning holes, and opposite second ends of the pins are welded to the printed circuit board.

Claim 16 (currently amended): A heat sink assembly comprising:
a printed circuit board with an electronic package located thereon and a plurality of through holes therein;

a retention module surrounding the electronic package with four projections diagonally extending outwardly from four corners thereof, respectively, the retention module defining an opening therein;

four pins respectively extending through said four projections of the retention module and fastened to the corresponding through holes wherein the retention module is fixed to the printed circuit board;

a heat sink defining a plurality of slots, the heat sink having a base received in the opening of the retention module;

a clip defining a rectangular frame like configuration with at least two

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pressing bars extending through the corresponding slots in a parallel relationship; and

two pairs of locking devices located at two opposite sides of the clip, which are perpendicular to the pressing bars, and respectively latchably engaged with two opposite sides of the retention module, each of which is vertically aligned with the corresponding side of the clip and located between a corresponding pair of said four projections.